The Impact of Consumer Driven Health Plans (CDHPs) on Utilization, Adherence and Expenditures

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INTRODUCTION

• Consumer Driven Health Plans (CDHPs) have become an important plan offering for employers.
• It has been debated that CDHPs can control health care cost by promoting greater consumer involvement in making health care decisions. However, it has also been suggested that CDHPs can distort the risk pool and discourage patients from getting needed healthcare services.
• Prior research on CDHPs has been limited. Parents and colleagues found that CDHP results in higher hospital utilization and an increase in medical expenditures.

• Few studies have examined the impact of CDHP on specific components of medical utilization, medication adherence and expenditures for individual chronic disease states.

INTRODUCTION

• Examine the impact of CDHPs on pharmacy utilization and adherence, medical utilization and healthcare expenditures for individuals with chronic disease states who switched from a traditional PPO plan in 2004 to a CDHP for 2005

METHODS (1)

Study Design
• Retrospective, longitudinal cohort study

Study Population
• Study sample consists of employees for a large national employer who switched from offering PPO plan in 2004 to offering only CDHPs in 2005
• Specific individuals with at least one outpatient visit or ER visit or hospitalization for the following chronic conditions as the primary diagnosis were selected for analyses:
  - Arthritis, Asthma, Diabetes, Depression, Dyslipidemia, GERD and Hypertension

Timing
• 12 months pre and post CDHP implementation

Description of the PPO plan
• The PPO plan offered in 2004 had two options, high ($500-$1500) and low deductible ($300-$900). After the deductible was met, members paid 80% for all services. The prescription benefit was a three-tier plan ($10 for generic, $20 for formulary brands and the greater of $30 or 30% for non formulary brands).

Description of the CDHP
• The CDHP had two options that was offered in 2005. The employer funded a PCA ranging from $750 to $1500 for option 1 and $200 to $400 for option 2. Deductibles amounts ranged from $750 to $1500. Once the PCA funds were exhausted, healthcare coverage was 80% for in network services and prescriptions and 60% for out of network services and prescriptions.

• Premiums for the CDHPs and PPOs were comparable:
  - The employer only offered a CDHP product in 2005

• It has been debated that CDHPs can control health care cost by promoting greater consumer involvement in making health care decisions. However, it has also been suggested that CDHPs can distort the risk pool and discourage patients from getting needed healthcare services.

METHODS (2)

Outcomes Measure

Pharmacy Utilization
• Disease specific total number of prescriptions and disease specific total number of generic prescriptions as a proportion of the total number of prescriptions.
• Disease specific overall medication adherence as measured by the Medication Possession Ratio (defined as adherent if MPR was >0.8).

Medical Utilization
• Number of disease specific ER visits, hospitalizations, outpatient visits, laboratory and diagnostic services.

Expenditures
• Mean medical expenditures per member per year (MMPY).
• Mean pharmacy expenditures MMPY.

• Mean cost sharing for medical and pharmacy expenses MMPY.

Statistical Methods
• Pre-post comparisons were conducted for each measure
• Generalized Estimating Equations (GEE) for repeated measures were used for all modeling to accommodate the correlation due to serial observations on subjects.
• Estimates for the treatment effect on healthcare cost were based on two part models with zero inflated Poisson model to address the presence of excess zero in the raw data.

RESULTS (1)

Table 1. Demographic Description of the CDHP sample

<table>
<thead>
<tr>
<th>Sample Size</th>
<th>n = 4,258</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (SD)</td>
<td>42.88 (15.76)</td>
</tr>
<tr>
<td>Female</td>
<td>1,895 (44.9%)</td>
</tr>
<tr>
<td>Black</td>
<td>645 (410.9)</td>
</tr>
</tbody>
</table>

Coverage Type
• Employee Only | 1,648 (38.7%)
• Employee with 1 Dependent | 861 (22.2%)
• Family Coverage | 1,749 (41.1%)

RESULTS (2)

Table 2. Disease Prevalence

<table>
<thead>
<tr>
<th>Disease Prevalence</th>
<th>Odds Ratio (95% CI)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyslipidemia</td>
<td>1.377 (32.34%)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Asthma</td>
<td>536 (12.56%)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Diabetes</td>
<td>892 (20.94%)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Depression</td>
<td>110 (2.56%)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Hypertension</td>
<td>2,085 (48.85%)</td>
<td>0.0001</td>
</tr>
<tr>
<td>GERD</td>
<td>486 (11.41%)</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

RESULTS (3)

Table 3. Likelihood of Being Adherent To Medications by Disease Status Between the Pre and Post Period

<table>
<thead>
<tr>
<th>Disease Status</th>
<th>Odds Ratio</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>0.6976</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Allergic Rhinitis</td>
<td>0.7969</td>
<td>0.0313</td>
</tr>
<tr>
<td>Arthritis</td>
<td>0.7702</td>
<td>0.0027</td>
</tr>
<tr>
<td>Asthma</td>
<td>0.4281</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Depression</td>
<td>0.9463</td>
<td>0.8471</td>
</tr>
<tr>
<td>Diabetes</td>
<td>0.5435</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>0.6821</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>GERD</td>
<td>0.5865</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Hypertension</td>
<td>0.7735</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

CONCLUSIONS

• Number of outpatient visits decreased by 40.24%, laboratory and diagnostic services showed a 43.9% reduction, and total number of prescriptions decreased by 28.3% after switching to a CHDP.

• The likelihood of having an ER visit (91.87%) or hospitalization (60.01%) were much lower after switching to a CDHP.

• Mean medical expenditures MMPY showed a 7.92% reduction while mean pharmacy expenditures MMPY decreased by 22.51%.

• Member cost sharing was 20% lower for medical services but 3.27% higher for prescription medications.

• Overall, medication adherence decreased by 30.24% across all disease states. In examining key chronic disease states, patients with diabetes and patients with asthma were most affected by switching to a CDHP from a PPO plan.

• While short-term cost savings were achieved, additional research is warranted to evaluate the long-term impact of decreased adherence and decreased utilization of necessary medical care.

LIMITATIONS

• Other confounding factors such as income level that might have impacted in healthcare utilization were not available.

• The CDHP was a full replacement product, so while the impact of selection bias was unobservable, it is unlikely to be a primary issue.

• Internal validity of the results is limited due to lack of control group

REFERENCES


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